Pending Original Claims; "Non-Elected" Original Claims Withdrawn Per Restriction Requirement; Previously Presented Claims; "Currently Amended" Claims; New Claims

No Admission. The claims presented below are labeled pursuant to the request of the Patent and Trademark Office for convenience in examination. Reference to a claim as "currently amended" is not an admission that the claim was altered for any reason related to patentability.

1. (currently amended) A binding domain-immunoglobulin fusion protein, comprising:

(a) a binding domain polypeptide that is fused to an immunoglobulin hinge region polypeptide, wherein said hinge region polypeptide is selected from the group consisting of (i) ~~a mutated hinge region polypeptide that contains no cysteine residues and that is derived from a wild-type immunoglobulin hinge region polypeptide having one or more cysteine residues, (ii)~~ a mutated hinge region polypeptide that contains one cysteine residue and that is derived from a wild-type immunoglobulin hinge region polypeptide having two or more cysteine residues, (ii) ~~(iii)~~ a wild-type human IgA hinge region polypeptide, (iii) ~~(iv)~~ a mutated human IgA hinge region polypeptide that contains no cysteine residues and that is derived from a wild-type human IgA region polypeptide, and (iv) ~~(v)~~ a mutated human IgA hinge region polypeptide that contains one cysteine residue and that is derived from a wild-type human IgA region polypeptide;

(b) an immunoglobulin heavy chain CH2 constant region polypeptide that is fused to the hinge region polypeptide; and

(c) an immunoglobulin heavy chain CH3 constant region polypeptide that is fused to the CH2 constant region polypeptide,

wherein:

(1) the binding domain-immunoglobulin fusion protein is capable of at least one immunological activity selected from the group consisting of antibody dependent cell-mediated cytotoxicity and complement fixation, and

(2) the binding domain polypeptide is capable of specifically binding to an antigen.

2. (original) The binding domain-immunoglobulin fusion protein of claim 1 wherein the immunoglobulin hinge region polypeptide is a mutated hinge region polypeptide and exhibits a reduced ability to dimerize, relative to a wild-type human immunoglobulin G hinge region polypeptide.

3. (canceled)

4. (currently amended) The binding domain-immunoglobulin fusion protein of claim 1 wherein the ~~immunoglobulin variable~~ hinge region polypeptide that contains one cysteine residue is derived from a human IgG1 wild-type hinge region polypeptide.

5. (original) The binding domain Fv-immunoglobulin fusion protein of claim 1 wherein the binding domain polypeptide comprises:

(a) at least one immunoglobulin light chain variable region polypeptide;

(b) at least one immunoglobulin heavy chain variable region polypeptide; and

(c) at least one linker peptide that is fused to the polypeptide of (a) and to the polypeptide of (b).

6. (original) The binding domain-immunoglobulin fusion protein of claim 5 wherein the immunoglobulin light chain variable region and heavy chain variable region polypeptides are derived from human immunoglobulins.

7. (original) The binding domain-immunoglobulin fusion protein of claim 1 wherein at least one of the immunoglobulin heavy chain CH2 constant region polypeptide and the immunoglobulin heavy chain CH3 constant region polypeptide is derived from a human immunoglobulin heavy chain.

8. (original) The binding domain-immunoglobulin fusion protein of claim 1 wherein the immunoglobulin heavy chain constant region CH2 and CH3 polypeptides are of an isotype selected from the group consisting of human IgG and human IgA.

9. (original) The binding domain-immunoglobulin fusion protein of claim 1 wherein the antigen is selected from the group consisting of CD19, CD20, CD37, CD40 and L6.

10. (currently amended) The binding domain-immunoglobulin fusion protein of claim 5 wherein the linker ~~polypeptide~~ peptide comprises at least one ~~polypeptide~~ peptide having as an amino acid sequence Gly-Gly-Gly-Gly-Ser.

11. (currently amended) The binding domain-immunoglobulin fusion protein of claim 5 wherein the linker ~~polypeptide~~ peptide comprises at least three repeats of a ~~polypeptide~~ peptide having as an amino acid sequence Gly-Gly-Gly-Gly-Ser.

12. (original) The binding domain-immunoglobulin fusion protein of claim 1 wherein the immunoglobulin hinge region polypeptide comprises a human IgA hinge region polypeptide.

13. (original) The binding domain-immunoglobulin fusion protein of claim 1 wherein the binding domain polypeptide comprises a CD154 extracellular domain.

14-18. (canceled)

19. (original) A pharmaceutical composition comprising a binding domain-immunoglobulin fusion protein according to claim 1 in combination with a physiologically acceptable carrier.

20-22. (canceled)

23. (currently amended) A single chain protein, comprising:

(a) a binding domain polypeptide capable of binding to a ~~cellular~~ target, said binding domain polypeptide being joined to

(b) a hinge peptide, said hinge peptide being joined to

(c) an immunoglobulin heavy chain CH2 constant region polypeptide, said CH2 constant region polypeptide being joined to

(d) an immunoglobulin heavy chain CH3 constant region polypeptide,

wherein said hinge peptide is an IgG or IgA hinge peptide that has been made to contain ~~contains~~ one or two cysteine residues, provided that when the hinge peptide contains two cysteines the first cysteine of the hinge that is responsible for forming a disulfide bond with a light chain constant region in a naturally-occurring IgG or IgA antibody is not deleted or substituted with an amino acid, and

wherein said single chain protein (1) is capable of binding to said target, and (2) is capable of promoting antibody dependent cell-mediated cytotoxicity ~~and~~ or complement fixation or both~~, and (3) is capable of decreasing the number of target cells~~.

24. (currently amended) A single chain protein, comprising:

(a) a binding domain polypeptide capable of binding to a cell surface receptor ~~cellular target~~, said binding domain polypeptide being joined to

(b) a hinge peptide, said hinge peptide being joined to

(c) an immunoglobulin heavy chain CH2 constant region polypeptide, said CH2 constant region polypeptide being joined to

(d) an immunoglobulin heavy chain CH3 constant region polypeptide,

wherein said hinge peptide is an IgG or IgA hinge peptide that has been made to contain one or two cysteine residues, provided that when the hinge peptide contains two cysteines the first cysteine of the hinge that is responsible for forming a disulfide bond with a light chain constant region in a naturally-occurring IgG or IgA antibody is not deleted or substituted with an amino acid, and

wherein said single chain protein ~~(1) is capable of binding to said target, and (2)~~ is capable of antibody dependent cell-mediated cytotoxicity ~~and~~ or complement fixation or both, ~~and (3) is capable of decreasing the number of target cells~~.

25. (currently amended) A single chain protein, comprising:

(a) a binding domain polypeptide capable of binding to a ~~cellular~~ target cell, said binding domain polypeptide being joined to

(b) a hinge peptide, said hinge peptide being joined to

(c) an immunoglobulin heavy chain CH2 constant region polypeptide, said CH2 constant region polypeptide being joined to

(d) an immunoglobulin heavy chain CH3 constant region polypeptide,

wherein said single chain protein is capable of binding to said target and decreasing the number of target cells, and

wherein said hinge peptide is an IgG or IgA hinge peptide that has been made to contain one or two cysteine residues, provided that when the hinge peptide contains two cysteines the first cysteine of the hinge that is responsible for forming a disulfide bond with a light chain constant region in a naturally-occurring IgG or IgA antibody is not deleted or substituted with an amino acid.

26. (currently amended) The single chain protein of ~~either~~ any one of claims 23, 24, or 25 wherein said binding domain polypeptide is a single chain Fv polypeptide.

27. (currently amended) The single chain protein of ~~any one of claims 23, 24, 25, or~~ claim 26 wherein said single chain protein is capable of binding to a B cell target.

28. (previously presented) The single chain protein of claim 27 wherein said B cell target is CD20.

29. (previously presented) The single chain protein of claim 27 wherein said B cell target is CD37.

30. (previously presented) The single chain protein of claim 27 wherein said B cell target is selected from the group consisting of CD19, CD22, CD30 ligand, CD54, CD106, and interleukin-12.

31. (previously presented) The single chain protein of claim 27 wherein said single chain protein is capable of depleting a population of target cells.

32. (currently amended) The single chain protein of claim 25 ~~27~~ wherein said single chain protein is capable of decreasing the number of target cells in vivo.

33. (currently amended) The single chain protein of claim 25 ~~27~~ wherein said single chain protein is capable of decreasing the number of target cells in vitro.

34. (currently amended) The single chain protein of ~~any of~~ claim 26 wherein the heavy and light chain variable regions of the ~~scFv~~ single chain Fv are joined by a polypeptide linker of at least about 6 amino acids.

35. (currently amended) The single chain protein of claim 25 ~~26~~ wherein said single chain Fv polypeptide is capable of binding to a target selected from the group consisting of CD2, CD5, CD10, CD27, CD28, CD40, CTLA-4, 4-1BB, 4-1BB ligand, interferon-γ, interleukin-4, interleukin-17, and interleukin-17 receptor.

36. (currently amended) The single chain protein of claim 25 ~~26~~ wherein said single chain Fv polypeptide is capable of binding to a target selected from the group consisting of CD59, CD48, CD72, CD70, CD86/B7.2, CD40 ligand, IL-17, CD43 and VLA-4 ($\alpha_4\beta_7$).

37. (currently amended) The single chain protein of claim 25 ~~26~~ wherein said single chain Fv polypeptide is capable of binding to a target selected from the group consisting of CD83 and DEC-205.

38. (currently amended) The single chain protein of claim 25 ~~26~~ wherein said single chain Fv polypeptide is capable of binding to a target selected from the group consisting of HER1, HER2, HER3, HER4, epidermal growth factor receptor, vascular endothelial cell growth factor, vascular endothelial cell growth factor receptor, insulin-like growth factor-I, insulin-like

growth factor-II, transferrin receptor, estrogen receptor, progesterone receptor, follicle stimulating hormone receptor, retinoic acid receptor, MUC-1, NY-ESO-1, NA 17-A, Melan-A/MART-1, tyrosinase, Gp-100, MAGE, BAGE, GAGE, ~~any of the~~ CTA class of receptors including in particular HOM-MEL-40 antigen encoded by the SSX2 gene, carcinoembyonic antigen, and PyLT.

39. (currently amended) The single chain protein of any of claims 23, 24 or 25 ~~23-26~~ wherein said ~~target is CD20 and said~~ binding domain polypeptide is a single chain Fv capable of binding CD20, wherein said hinge peptide contains one or ~~more~~ two cysteines that have been deleted or substituted with non-cysteine amino acid ~~serine in place of one or more cysteine~~ residues, and wherein said immunoglobulin heavy chain CH2 and CH3 constant region polypeptides are ~~are~~ IgG1 CH2 and CH3 constant region polypeptides.

40. (previously presented) The single chain protein of claim 39, wherein said single chain protein includes a 2H7 single chain Fv binding domain polypeptide.

41. (previously presented) The single chain protein of claim 39, wherein said single chain protein includes a 2H7 single chain Fv binding domain polypeptide, and wherein said hinge peptide contains one or more serine in place of one or more cysteine residues.

42. (currently amended) The single chain protein of claim 39 ~~any of claims 23-26~~, wherein ~~said target is CD20 and said binding domain is capable of binding CD20, wherein said hinge peptide contains one or more serine in place of one or more cysteine residues, and~~ wherein said heavy chain constant region comprises a CH2 domain in which a leucine has been replaced with serine at position 234.

43. (currently amended) The single chain protein of claim 42, wherein the binding domain polypeptide ~~in said single chain protein~~ is a 2H7 single chain Fv~~, and wherein said hinge peptide contains one or more serine residues in place of one or more cysteine residues~~.

44. (currently amended) The ~~single chain~~ protein of claim 5 ~~42~~ wherein said binding domain polypeptide ~~single chain Fv polypeptide~~ is a 2H7 single chain Fv, and wherein said hinge peptide comprises at least a portion of an IgA hinge.

45. (previously presented) The single chain protein of claim 44 wherein said hinge peptide comprises a wild type IgA hinge.

46. (currently amended) The single chain protein of claim 26 ~~any of claims 23-26~~ wherein said binding domain is a single chain Fv capable of binding ~~target is~~ a L6 carcinoma antigen, said ~~binding domain is capable of binding L6, said~~ hinge peptide comprises at least a portion of an IgA hinge, and said immunoglobulin heavy chain CH2 and CH3 constant region polypeptides are IgG1 CH2 and CH3 constant region polypeptides.

47. (previously presented) The single chain protein of claim 46 wherein said hinge peptide comprises a wild type IgA hinge.

48. (currently amended) The single chain protein of any of claims ~~23-26~~ 26 wherein said ~~target is a L6 carcinoma antigen, said~~ binding domain is an single chain Fv capable of binding a L6 carcinoma antigen, said hinge peptide contains one or ~~more~~ two cysteines that have been deleted or substituted with non-cysteine amino acid ~~serine residues in place of one or more cysteine~~ residues, and said immunoglobulin heavy chain CH2 and CH3 constant region polypeptides are ~~are~~ IgG1 CH2 and CH3 constant region polypeptides.

49. (currently amended) The single chain protein of claim 1 ~~48~~ wherein said hinge peptide (iii) contains three serine residues in place of three cysteine residues.

50. (currently amended) A pharmaceutical composition comprising a ~~single chain~~ protein according to any one of claims 1, 23, 24 or 25, wherein said protein is a single chain protein, ~~23-26~~ in combination with a physiologically acceptable carrier in a form suitable for administration and in an amount useful for the treatment of a malignant condition or B-cell disorder in a patient.

51. (currently amended) A pharmaceutical composition of claim 50 wherein said single chain protein ~~target is CD20 and~~ is capable of binding CD20 with a binding affinity of at least about 10^7 M^{-1}.

52. (previously presented) A pharmaceutical composition of claim 50 wherein said single chain protein comprises a single chain Fv selected from the group consisting of 2H7 single chain Fvs, L6 single chain Fvs, HD37 single chain Fvs, and G28-1 single chain Fvs.

53. (currently amended) A pharmaceutical composition of claim 50 ~~52~~ wherein said single chain protein comprises a ~~target is CD20 and said~~ single chain Fv ~~is~~ capable of binding CD20, wherein said single chain Fv is not a 1F5 single chain Fv.

54. (currently amended) A pharmaceutical composition of claim 52 wherein said single chain ~~protein target is CD20 and said single chain~~ Fv is a 2H7 single chain Fv.

55. (currently amended) A pharmaceutical composition of claim 50 ~~52~~ wherein said single chain protein comprises a single chain Fv ~~polypeptide is~~ capable of binding to a B cell target.

56. (previously presented) A pharmaceutical composition of claim 55 wherein said B cell target is CD20.

57. (previously presented) A pharmaceutical composition of claim 55 wherein said B cell target is CD37.

58. (previously presented) A pharmaceutical composition of claim 55 wherein said B cell target is selected from the group consisting of CD19, CD22, CD30 ligand, CD54, CD106, and interleukin-12.

59. (currently amended) A pharmaceutical composition of any of claims 51~~50~~-58 wherein the binding domain polypeptide of said single chain protein comprises a heavy chain variable region and a light chain variable region, wherein said heavy and light chain variable regions of the scFv are joined by a polypeptide linker of at least about 6 amino acids.

60. (previously presented) A pharmaceutical composition of claim 50 wherein the binding domain polypeptide of said single chain protein comprises a single chain Fv polypeptide capable of binding to a target selected from the group consisting of CD2, CD5, CD10, CD27, CD28, CD40, CTLA-4, 4-1BB, 4-1BB ligand, interferon-γ, interleukin-4, interleukin-17, and interleukin-17 receptor.

61. (previously presented) A pharmaceutical composition of claim 50 wherein the binding domain polypeptide of said single chain protein comprises a single chain Fv polypeptide capable of binding to a target selected from the group consisting of CD59, CD48, CD72, CD70, CD86/B7.2, CD40 ligand, IL-17, CD43 and VLA-4 ($\alpha_4\beta_7$).

62. (previously presented) A pharmaceutical composition of claim 50 wherein the binding domain polypeptide of said single chain protein comprises a single chain Fv polypeptide capable of binding to a target selected from the group consisting of CD83 and DEC-205.

63. (previously presented) A pharmaceutical composition of claim 50 wherein said binding domain polypeptide of said single chain protein comprises a single chain Fv polypeptide capable of binding to a target selected from the group consisting of HER1, HER2, HER3, HER4, epidermal growth factor receptor, vascular endothelial cell growth factor, vascular endothelial cell growth factor receptor, insulin-like growth factor-I, insulin-like growth factor-II, transferrin receptor, estrogen receptor, progesterone receptor, follicle stimulating hormone receptor, retinoic acid receptor, MUC-1, NY-ESO-1, NA 17-A, Melan-A/MART-1, tyrosinase, Gp-100, MAGE, BAGE, GAGE, any of the CTA class of receptors including in particular HOM-MEL-40 antigen encoded by the SSX2 gene, carcinoembyonic antigen, and PyLT.

64. (currently amended) A pharmaceutical composition of claim 50 wherein said single chain protein comprises a single chain Fv capable of binding to a human CD20, and wherein the hinge peptide of said single chain protein is an altered naturally-occurring immunoglobulin hinge region polypeptide.

65. (currently amended) A pharmaceutical composition of claim 64 wherein said altered naturally-occurring immunoglobulin hinge region polypeptide is an altered IgG1 hinge region polypeptide.

66. (currently amended) A pharmaceutical composition of claim 65 wherein said altered IgG1 hinge region polypeptide is an altered human IgG1 hinge region polypeptide.

67. (currently amended) A pharmaceutical composition of claim 64 wherein said altered naturally-occurring immunoglobulin hinge region polypeptide is an altered IgD hinge region polypeptide.

68. (currently amended) A pharmaceutical composition of claim 64 wherein said altered naturally-occurring immunoglobulin hinge region polypeptide is selected from the group consisting of an altered IgG2 hinge region polypeptide, an altered IgG3 hinge region polypeptide, and an altered IgG4 hinge region polypeptide.

69. (currently amended) A pharmaceutical composition of claim 68 wherein said altered IgG2, IgG3 and IgG4 hinge region polypeptides are altered human IgG2, IgG3 and IgG4 hinge region polypeptides.

70. (currently amended) A pharmaceutical composition of claim 64 wherein said altered naturally-occurring immunoglobulin hinge region polypeptide is an altered IgA hinge region polypeptide.

71. (currently amended) A pharmaceutical composition of claim 70 wherein said altered IgA hinge region polypeptide is an altered human IgA hinge region polypeptide.

72. (previously presented) A pharmaceutical composition of claim 50 wherein the hinge peptide of said single chain protein is mutated naturally-occurring immunoglobulin hinge region polypeptide.

73. (previously presented) A pharmaceutical composition of claim 72 wherein said naturally-occurring immunoglobulin hinge region polypeptide is human.

74. (previously presented) A pharmaceutical composition of claims 72 or 73 wherein said mutated hinge region polypeptide has been altered to contain less cysteine amino acid residues than the naturally-occurring immunoglobulin hinge region polypeptide from which it was derived.

75. (previously presented) A pharmaceutical composition of claims 72 or 73 wherein said mutated immunoglobulin hinge region polypeptide has two cysteine amino acid residues.

76. (previously presented) A pharmaceutical composition of claim 71 wherein said mutated immunoglobulin hinge region polypeptide is an IgG hinge region polypeptide having two cysteine amino acid residues.

77. (previously presented) A pharmaceutical composition of claims 72 or 73 wherein said mutated immunoglobulin hinge region polypeptide has one cysteine amino acid residue.

78. (previously presented) A pharmaceutical composition of claims 72 or 73 wherein said mutated immunoglobulin hinge region polypeptide has no cysteine amino acid residues.

79. (previously presented) A pharmaceutical composition of claim 77 wherein said mutated immunoglobulin hinge region polypeptide is an IgG hinge region polypeptide having one cysteine amino acid residue.

80. (previously presented) A pharmaceutical composition of claim 77 wherein said mutated immunoglobulin hinge region polypeptide is an IgG1 hinge region polypeptide having one cysteine amino acid residue and wherein said cysteine amino acid residue is not the IgG1 hinge region cysteine residue responsible for forming a disulfide bond with a light chain cysteine residue.

81. (previously presented) A pharmaceutical composition of claim 77 wherein said mutated immunoglobulin hinge region polypeptide is an IgA hinge region polypeptide having one cysteine amino acid residue.

82. (previously presented) A pharmaceutical composition of claim 78 wherein said mutated immunoglobulin hinge region polypeptide is an IgG hinge region polypeptide having no cysteine amino acid residues.

83. (previously presented) A pharmaceutical composition of claim 78 wherein said mutated immunoglobulin hinge region polypeptide is an IgA hinge region polypeptide having no cysteine amino acid residues.

84. (previously presented) A pharmaceutical composition of claim 50 wherein the hinge peptide of said single chain protein is selected from the group consisting of naturally occurring immunoglobulin hinge region polypeptides and mutated immunoglobulin hinge region polypeptides.

85. (previously presented) A pharmaceutical composition of claim 84 wherein said hinge peptide is from about 5 to about 65 amino acids.

86. (previously presented) A pharmaceutical composition of claim 84 wherein said hinge peptide is from about 10 to about 50 amino acids.

87. (previously presented) A pharmaceutical composition of claim 84 wherein said hinge peptide is from about 15 to about 35 amino acids.

88. (previously presented) A pharmaceutical composition of claim 84 wherein said hinge peptide is from about 18 to about 32 amino acids.

89. (previously presented) A pharmaceutical composition of claim 84 wherein said hinge peptide is from about 20 to about 30 amino acids.

90. (previously presented) A pharmaceutical composition of any of claims 85-89, wherein said hinge peptide further comprises one or more C-terminal CH1 domain amino acids.

91. (previously presented) A pharmaceutical composition of any of claims 85-89, wherein said hinge peptide further comprises one or more C-terminal CH2 domain amino acids.

92. (previously presented) A pharmaceutical composition of claim 50 wherein said immunoglobulin heavy chain CH2 constant region polypeptide is an IgG heavy chain CH2 constant region polypeptide.

93. (previously presented) A pharmaceutical composition of claim 50 wherein said immunoglobulin heavy chain CH3 constant region polypeptide is an IgG heavy chain CH3 constant region polypeptide.

94. (previously presented) A pharmaceutical composition of claims 92 or 93 wherein said constant region polypeptides are human constant region polypeptides.

95. (previously presented) A pharmaceutical composition of claim 50 wherein said immunoglobulin heavy chain CH2 constant region polypeptide is an IgA heavy chain CH2 constant region polypeptide.

96. (previously presented) A pharmaceutical composition of claim 50 wherein said immunoglobulin heavy chain CH3 constant region polypeptide is an IgA heavy chain CH3 constant region polypeptide.

97. (previously presented) A pharmaceutical composition of claims 95 or 96 wherein said constant region polypeptides are human constant region polypeptides.

98. (previously presented) A pharmaceutical composition of claim 50 wherein said target is CD20 and said binding domain is capable of binding CD20, one or more cysteine residues in said hinge peptide have been replaced with one or more serine residues, and said immunoglobulin heavy chain CH2 and CH3 constant region polypeptides are from IgG1.

99. (previously presented) A pharmaceutical composition of claim 98, wherein said single chain protein is a 2H7 single chain Fv, and one or more cysteine residues in said hinge peptide have been replaced with one or more serine residues.

100. (previously presented) A pharmaceutical composition of claim 50 wherein said target is CD20, said binding domain is capable of binding CD20, one or more cysteine residues in said hinge peptide have been replaced with one or more serine residues, and wherein said heavy chain constant region comprises a CH2 domain where leucine is substituted with serine at position 234.

101. (previously presented) A pharmaceutical composition of claim 99, wherein said single chain protein is a 2H7 scFv in which three cysteine residues in said hinge peptide are substituted with serine.

102. (previously presented) The single chain protein of claim 26 wherein said single chain Fv polypeptide is a 2H7 scFv, wherein said hinge peptide comprises at least a portion of an IgA hinge.

103. (previously presented) The single chain protein of claim 102 wherein said hinge peptide comprises a wild type IgA hinge.

104. (previously presented) The single chain protein of claim 26 wherein said target is an L6 carcinoma antigen, said binding domain is capable of binding L6, said hinge peptide comprises at least a portion of an IgA hinge, and said immunoglobulin heavy chain CH2 and CH3 constant region polypeptides are from IgG1.

105. (previously presented) The single chain protein of claim 104 wherein said hinge peptide comprises a wild type IgA hinge.

106. (previously presented) The single chain protein of claim 26 wherein said target is an L6 carcinoma antigen, said binding domain is capable of binding L6, one or more cysteine residues in said hinge peptide have been replaced with one or more serine residues, and said immunoglobulin heavy chain CH2 and CH3 constant region polypeptides are from IgG1.

107. (currently amended) A single chain protein comprising a single chain Fv binding domain polypeptide capable of binding to CD20 joined to an IgE constant hinge region polypeptide which is joined to an immunoglobulin heavy chain CH2 CH3 constant region polypeptide.

108. (currently amended) A single chain protein of claim 107 wherein said IgE constant hinge region polypeptide is a human ~~comprises two or three~~ IgE constant hinge region polypeptide ~~domains~~.

109. (previously presented) A pharmaceutical composition according to claim 50 wherein said malignant condition or a B-cell disorder is selected from the group consisting of rheumatoid arthritis, myasthenia gravis, Grave's disease, type I diabetes mellitus, multiple sclerosis and an autoimmune disease.

Please add the following new claims 110-142.

110. (new) The binding domain immunoglobulin fusion protein of claim 1 wherein the binding domain polypeptide is a single chain Fv.

111. (new) The binding domain immunoglobulin fusion protein of claim 110 wherein said single chain Fv comprises a murine variable light chain and a murine variable heavy chain.

112. (new) The binding domain immunoglobulin fusion protein of claim 110 wherein said single chain Fv comprises a human variable light chain and a human variable heavy chain.

113. (new) The binding domain immunoglobulin fusion protein of claim 110 wherein said single chain Fv comprises a non-human variable light chain and a non-human variable heavy chain whose sequences have been altered to be less immunogenic in humans.

114. (new) The binding domain-immunoglobulin fusion protein of claim 1 wherein the binding domain polypeptide binds to CD19.

115. (new) The binding domain immunoglobulin fusion protein of claim 114 wherein the binding domain polypeptide is a single chain Fv.

116. The binding domain immunoglobulin fusion protein of claim 115 wherein said single chain Fv comprises a non-human variable light chain and a non-human variable heavy chain whose sequences have been altered to be less immunogenic in humans.

117. (new) The binding domain-immunoglobulin fusion protein of claim 1 wherein the binding domain polypeptide binds to CD20.

118. (new) The binding domain immunoglobulin fusion protein of claim 117 wherein the binding domain polypeptide is a single chain Fv.

119. (new) The binding domain immunoglobulin fusion protein of claim 118 wherein said single chain Fv comprises a non-human variable light chain and a non-human variable heavy chain whose sequences have been altered to be less immunogenic in humans.

120. (new) The binding domain-immunoglobulin fusion protein of claim 1 wherein the binding domain polypeptide binds to CD37.

121. (new) The binding domain immunoglobulin fusion protein of claim 120 wherein the binding domain polypeptide is a single chain Fv.

122. (new) The binding domain immunoglobulin fusion protein of claim 121 wherein said single chain Fv comprises a non-human variable light chain and a non-human variable heavy chain whose sequences have been altered to be less immunogenic in humans.

123. (new) The binding domain-immunoglobulin fusion protein of claim 1 wherein the binding domain polypeptide binds to CD40.

124. (new) The binding domain immunoglobulin fusion protein of claim 123 wherein the binding domain polypeptide is a single chain Fv.

125. (new) The binding domain immunoglobulin fusion protein of claim 124 wherein said single chain Fv comprises a non-human variable light chain and a non-human variable heavy chain whose sequences have been altered to be less immunogenic in humans.

126. (new) The binding domain-immunoglobulin fusion protein of claim 1 wherein the binding domain polypeptide binds to L6.

127. (new) The binding domain immunoglobulin fusion protein of claim 126 wherein the binding domain polypeptide is a single chain Fv.

128. (new) The binding domain immunoglobulin fusion protein of claim 127 wherein said single chain Fv comprises a non-human variable light chain and a non-human variable heavy chain whose sequences have been altered to be less immunogenic in humans.

129. (new) The binding domain immunoglobulin fusion protein of claim 2 wherein said ability to dimerize is evaluated using a biochemical separation technique for resolving proteins on the basis of molecular size and/or a comparison of protein physicochemical properties before and after introduction of a disulfide-reducing agent.

130. (new) The binding domain immunoglobulin fusion protein of claim 6 wherein said immunoglobulin light chain variable region and heavy chain variable region polypeptides are human.

131. (new) The binding domain immunoglobulin fusion protein of claim 6 wherein said immunoglobulin light chain variable region and heavy chain variable region polypeptides are humanized.

132. (new) The binding domain immunoglobulin fusion protein of claim 7 wherein the immunoglobulin heavy chain CH2 and the immunoglobulin heavy chain CH3 constant region polypeptides are human.

133. (new) The binding domain immunoglobulin fusion protein of claim 127 wherein the human immunoglobulin heavy chain CH2 and CH3 constant region polypeptides are human IgG CH2 and CH3 constant region polypeptides.

134. (new) The binding domain immunoglobulin fusion protein of claim 127 wherein the human immunoglobulin heavy chain CH2 and CH3 constant region polypeptides are human IgA CH2 and CH3 constant region polypeptides.

135. (new) A binding domain-immunoglobulin fusion protein according to any one of claims 1, 2, 4-12 or 13, wherein said binding domain-immunoglobulin fusion protein has a K_a of at least about 10^7 M^{-1}.

136. (new) A binding domain-immunoglobulin fusion protein according to any one of 110-135, wherein said binding domain-immunoglobulin fusion protein has a K_a of at least about 10^7 M^{-1}.

137. (new) A pharmaceutical composition comprising a binding domain-immunoglobulin fusion protein according to any one of claims 2, 4-12 or 13 in combination with a physiologically acceptable carrier.

138. (new) A pharmaceutical composition comprising a binding domain-immunoglobulin fusion protein according to any one of claims 110-135 in combination with a physiologically acceptable carrier.

139. (new) The single chain protein of claim 23 wherein said target is a protein.

140. (new) The single chain protein of claim 23 wherein said target is a cell surface receptor.

141. (new) The single chain protein of claim 23 wherein said target is not a cell surface receptor.

142. (new) The single chain protein of claim 39 wherein one or both of said IgG1 CH2 and CH3 constant region polypeptides are human IgG1 CH2 and CH3 constant region polypeptides.